Introduction

- Develop Human Error Abstraction Training
- Evaluate participants ability to perform the most basic error abstraction (Planning vs. Execution errors)
- Improve training for error abstraction

Goals

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Study Design

Participants

- 26 Graduate-Level Computer Science Students from North Dakota State University

Step 1 (Training) - Video Lesson on Human Error Abstraction

Step 2 (Pre-test) - Abstract Errors from 5 Real Software Faults [with feedback]

Step 3 (Post-test) - Abstract Errors from 15 Real Software Faults [no feedback]

Step 4 (Survey) - Feedback on Training and Error Abstraction Performance

Results

- Average subject performance on post-test was 58%, with a Standard Deviation of 11%
- Students’ performance on Pre-test is Positively Correlated (Coefficient of 0.201) with their performance during the post-test ($p = 0.162$).

Discussion

- Pre-test performance though correlated, can not be used to predict their performance on post-test
- While subjects exhibited 58% accuracy (lower than expected) during the error abstraction, they rated the training instrument effective (Mean = 5.769, Std. Dev = 0.815)
- Planning errors were harder to identify when compared to the execution errors especially during retrospective analysis (after-the-fact)
- The highest frequency of suggestions to improve the training were to increase the number of examples in the training
- Participants also highly rated their understanding of human errors (Mean = 5.731, Std. Dev = 0.827)
- The accuracy between error types was 55% for planning errors; 64% for execution errors. This result is similar to findings in psychology literature
- This study is an exploratory one, and further research should be done to explore different tangents of training that may have and effect
- We plan to add more examples and practice faults in the training video, as well as evaluate improvements in future studies

References


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